

**AIR QUALITY REGISTRATION #64376
PLACE ID #1092**

REGISTRANT: City of Flagstaff
FACILITY: City of Flagstaff-Wildcat Hill WWTP
DATE ISSUED:
EXPIRY DATE:

SUMMARY

This registration is issued to City of Flagstaff-Utilities Division., the Registrant, for its Wildcat Hill Waste Water Treatment Plant facility, with the equipment listed in Table 2. This facility is located at 2800 El Paso Flagstaff Road, Flagstaff, AZ 86004. This facility has two natural gas-fired boilers, two diesel fired emergency generators and a digester gas generator. The digester gas generator uses methane gas generated from the sludge digester. The emergency generators are authorized to run up to 500 hours per year. The two boilers and the digester gas generator are authorized to run 8,760 hours per year.

This facility has a potential to emit (PTE) below the significant emission rates specified in A.A.C. R18-2-101(130) but above the permitting exemption thresholds specified in A.A.C. R18-2-101(99). Therefore, the facility requires a registration.

Table 1 identifies the PTE of the facility.

Table 1: Facility PTE

Pollutant	Potential to Emit
	Ton/yr
PM	1.09
SO ₂	7.57
NO _x	32.85
CO	12.27
VOC	2.51

I. GENERAL REQUIREMENTS

- A.** The Registrant shall file for a revised registration for changes to the facility prior to the occurrence of any of the following:

[A.A.C. R18-2-302.01.G.1]

1. A modification to the source that increases the uncontrolled potential to emit exceeding any of the following amounts:

[A.A.C. R18-2-302.01.G.1.a]

a. 2.5 tons per year for NO_x, SO₂, PM₁₀, PM_{2.5}, VOCs, or CO.

b. 0.3 tons per year for lead.

2. The transfer of the source to a new owner.

[A.A.C. R18-2-302.01.G.1.c]

3. The Registrant can begin actual construction and operation of the modified source upon filing the revised registration.

[A.A.C. R18-2-302.01.G.2]

- B.** This Registration shall be valid for five years from the date of issuance.

[A.A.C. R18-2-302.01.H.1]

- C.** The Registrant shall submit an application for renewal of a registration not later than six months before the expiration of the registration.

[A.A.C. R18-2-302.01.H.2]

- D.** If the Registrant submits a timely and complete application for renewal of a Registration, the Registrant's authorization to operate under its existing registration shall continue, until the Director takes a final action on the registration application.

[A.A.C. R18-2-302.01.H.3]

II. SPECIFIC REQUIREMENTS

- A.** This section applies to the following equipment(s)

Table 2: Equipment List

Name of Equipment	Capacity	Fuel	Make / Model	Date of Mfg.	Serial Number	Equipment ID
Hot water boiler	3.25 MMBtu/hr	Natural Gas	Ajax/WFG-3250	2004	010411804	101-A
Steam boiler	2.1 MMBtu/hr	Natural Gas	Hurst/S4-G-50-15	2007	S250-15-15	113-G
Emergency Gen 1	2220 HP	Diesel	Cummins/DFMB	1999	K990013554	102-B
Emergency Gen 2	2220 HP	Diesel	Cummins/QSK-50-G4	2008	33171991	107-E
Digester Gas Gen	440 HP	Digester Gas	Jenbacher/JMS208	2007	GS-C81	111-D

B. Requirements for Emergency Gen 1, compression ignition (CI) reciprocating internal combustion engine (RICE)

1. General Requirements

- a. The Registrant shall comply with the applicable emission limitations and operating limitations in this Section at all times.

[40 CFR 63.6605(a)]

- b. The Registrant shall operate and maintain at all times Emergency Gen 1 in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Registrant to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator or Director which may include, but is not limited to, review of operation and maintenance records, and inspection of the source.

[40 CFR 63.6605(b)]

- c. The Registrant must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

[40 CFR 63.6625(h)]

2. Operating Requirements

- a. The Registrant shall operate and maintain Emergency Gen 1 according to the manufacturer's emission-related operation and maintenance instructions; or develop and follow a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 CFR 63.6625(e)]

- b. The Registrant may operate Emergency Gen 1 for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of the engine is limited to no more than 100 hours per year. The Registrant may petition the Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Registrant maintains records indicating that the Federal, State, or local standards require maintenance and testing beyond 100 hours per year. Copies of records shall be made available to ADEQ upon request.

[40 CFR 60.6640(f)(1)(ii)]

- c. The Registrant shall install a non-resettable hour meter.

[40 CFR 63.6625(f)]

3. Maintenance requirements

- a. The Registrant shall change the oil and filter every 500 hours of operation or annually, whichever comes first. If the Registrant prefers to extend the oil change requirement, an oil analysis program must be performed every 500 hours of operation or annually, whichever comes first. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity and water content. The condemning limits for these parameters are as follows:

- (1) Total Base Number - less than 30 percent of Total Base Number of oil when new;
- (2) Viscosity -less than 20 percent from the viscosity of oil when new;
- (3) Water Content - less than 0.5 percent by volume
- (4) If all of the above limits are not exceeded, the Registrant is not required to change the oil. If any of the above limits are exceeded, the Registrant shall change the oil with 2 days of receiving the results of the analysis or before commencing operation, whichever is later. The analysis program shall be part of the maintenance plan.

[40 CFR 63.6603(a); Table 2d of Subpart ZZZZ; 63.6625(i)]

- b. The Registrant shall inspect air cleaner every 1,000 hours of operation or annually, whichever comes first.

[40 CFR 63.6603(a); Table 2d of Subpart ZZZZ]

- c. The Registrant shall inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary

[40 CFR 63.6603(a); Table 2d of Subpart ZZZZ]

4. Recordkeeping requirements

- a. The Registrant shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. Records shall include the date, start and stop times, hours spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

[40 CFR 63.6655(f)]

- b. The Registrant shall keep records of the parameters that are analyzed and the results of the oil analysis, if any, and the oil changes for the engine.

[40 CFR 63.6625(i)]

- c. The Registrant shall keep records of the maintenance conducted on the engine that demonstrates operation and maintenance in accordance with the maintenance plan.

[40 CFR 63.6655(e)]

- d. The Registrant shall keep records of the occurrence and duration of each malfunction of the engine or any air pollution control and monitoring equipment.

- e. The Registrant shall keep records of all required maintenance performed

on any air pollution control and monitoring equipment.

- f. The Registrant shall keep records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

[40 CFR 63.6655(a)]

5. Particulate Matter and Opacity

a. Emission Limitations and Standards

- (1) The Registrant shall not cause or allow to be discharged into the atmosphere from the generator stack(s) particulate matter in excess of the amount calculated by the following equation:

$$E = 1.02 Q^{0.769} \text{ where:}$$

E = the maximum allowable particulate emissions rate in pounds-mass per hour

Q = the heat input in million Btu per hour

[A.A.C. R18-2-719.C.1]

- (2) For the purposes of the calculations required above, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all operating fuel-burning units at a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted. The Registrant does not need to demonstrate compliance with this standard unless requested by ADEQ.

[A.A.C. R18-2-719.B]

- (3) The Registrant shall not cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period greater than 10 consecutive seconds which exceeds 40% opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

[A.A.C. R18-2-719.E]

6. Sulfur Dioxide

a. Emission Limitations and Standards

- (1) The Registrant shall not emit or cause to emit more than 1.0 pound of sulfur dioxide per million Btu heat input. The Registrant does not need to demonstrate compliance with this standard unless requested by ADEQ.

[A.A.C. R18-2-719.F]

- (2) The Registrant shall not burn high sulfur diesel fuel (sulfur content greater than 0.9 % by weight) in the generator(s).

[A.A.C. R18-2-719.H]

C. Requirements for Emergency Gen 2, compression ignition (CI) internal combustion engine (ICE)

1. Operating Requirements

- a. The Registrant shall operate and maintain Emergency Gen 2 and any control device according to the manufacturer's written instructions or procedures developed by the Registrant that are approved by the engine manufacturer, for the entire life of the engine. A copy of the instructions or procedures shall be kept onsite and made available to ADEQ upon request.

[40 CFR 60.4211(a), 60.4206 and A.A.C. R18-2-306.A.3]

- b. The Registrant shall only change those engine settings that are permitted by the manufacturer.

[40 CFR 60.4211(a)]

2. Fuel Requirements

The Registrant shall use diesel fuel that meets the requirements listed below:

- a. Sulfur content: 15 ppm maximum; and
- b. A minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

[40 CFR 60.4207(b)]

3. Operating Requirements

[40 CFR 60.4209(a) and 60.4211(e)]

- a. The Registrant shall install a non-resettable hour meter prior to startup of the engine.
- b. The Registrant shall not operate the engine for any operation other than emergency operation, and maintenance and testing.
- c. The Registrant may operate the engine for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine.
- d. Maintenance checks and readiness testing of such units is limited to 100 hours per year.
- e. The Registrant may petition the Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Registrant maintains records indicating that Federal, State, or local standards require maintenance and testing beyond 100 hours per year.

4. Compliance Requirements

The Registrant shall demonstrate compliance with the numeric emission standards specified in 40 CFR 60.4211 by maintaining appropriate manufacturer's documentation to indicate that the engine is certified to the appropriate standards. The engine must be installed and configured according to the manufacturer's specifications. The documentation shall be made available to ADEQ upon request.
[40 CFR 60.4211]

D. Requirements for the Digester Gas Generator, spark ignition (SI) internal combustion engine (ICE)

1. Emission Standards

The Registrant shall comply with the numeric emission standards for SI ICE in 40 CFR 60.4233 over the entire life of the engine.

[40 CFR 60.4233 and 4234]

2. Compliance Requirements

[40 CFR 60.4243 and A.A.C. R18-2-306.A.4.a]

- a. The Registrant shall demonstrate compliance with the numeric emission standards specified in 40 CFR 60.4233(f)(5) by operating and maintaining the engine and control device according to the manufacturer's emission-related written instructions. The Registrant shall keep records of conducted maintenance to demonstrate compliance, but no performance testing is required.
- b. Any air fuel ratio controller shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

3. Recordkeeping and Reporting Requirements

[40 CFR 60.4245]

The Registrant shall keep the following records:

- (1) Maintenance conducted on the engine.
- (2) Documentation from the manufacturer that the engine is certified to meet the applicable emission standards.

E. Requirements for Natural Gas-Fired Boilers

1. Particulate Matter

The Registrant shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from any fuel-burning operation in excess of the amounts calculated by the following equation. The Registrant does not need to demonstrate compliance with this standard unless requested by ADEQ.:

$$E = 1.02Q^{0.769}$$

where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour

Q = the heat input in million Btu per hour.

[A.A.C.R18-2-724.C.1]

2. Opacity standards

The Registrant shall not cause, allow or permit the opacity of any plume or effluent from the stack of boiler or fossil-fuel fired equipment to exceed 15 percent.

[A.A.C.R18-2-724.J]

F. Requirements for Odor Control

1. Operational Limitations

- a. The Registrant shall not emit gaseous or odorous materials from equipment, operations, or premises in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

- b. The Registrant shall process, store, use, and transport volatile compounds, paints, acids, alkalies, pesticides, fertilizers, and manure in such a manner that they will not evaporate, leak, escape, or otherwise be discharged into the ambient air as to cause or contribute to air pollution. The Registrant shall reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, by the use of control methods, devices, or equipment.

[A.A.C. R18-2-730.F]

- c. Where a stack, vent, or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor, or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such a stack, vent, or other outlet by the owner or operator thereof to a degree that will adequately dilute, reduce, or eliminate the discharge of air pollution to adjoining property.

[A.A.C. R18-2-730.G]

- d. The Registrant shall not allow hydrogen sulfide to be emitted from any location in such a manner and amount that the concentration of such emissions into the ambient air at any occupied place beyond the premises on which the source is located exceeds 0.03 parts per million by volume for any average period of 30 minutes or more.

[A.A.C. R18-2-730.H]